DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
690 Walnut Ave.St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4
Cty: SF/Ala Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-014929
Date Inspected: 19-Jun-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 1900
OSM Departure Time: 700
Location: Shanghai, China

CWI Name:	See below	**CWI Present:**	☑ Yes ☐ No
Inspected CWI report:	☐ Yes ☑ No ☐ N/A	**Rod Oven in Use:**	☑ Yes ☐ No ☐ N/A
Electrode to specification:	☑ Yes ☐ No ☐ N/A	**Weld Procedures Followed:**	☑ Yes ☐ No ☐ N/A
Qualified Welders:	☑ Yes ☐ No ☐ N/A	**Verified Joint Fit-up:**	☑ Yes ☐ No ☐ N/A
Approved Drawings:	☑ Yes ☐ No ☐ N/A	**Approved WPS:**	☑ Yes ☐ No ☐ N/A
		Delayed / Cancelled:	☐ Yes ☑ No ☐ N/A

Bridge No: 34-0006
Component: Tower and OBG Components

Summary of Items Observed:

On this date Caltrans OSM Quality Assurance Inspector (QA Inspector) George Goulet was present during the times noted above for observations relative to the work being performed.

Bay 10

This QA Inspector randomly observed no welding related work being performed in Bay 10.

Bay 11

This QA Inspector randomly observed the following work in progress in Bay 11:
ZPMC personnel attaching outer splice plate to west tower, lift3, skin D using temporary bolt sets and placing strut splice plates at 109M struts, skin A.

OBG Trial Assembly Area

This QA Inspector randomly observed the following work in progress in the OBG Trail Assembly Area:

SMAW tack welding of temporary alignment plates to the east end of counterweight at PCMK 8CW, at approximately panel point 68. Welder was identified as 045213. QC was identified as ZPMC CWI Li Yang (QC1). Welding variables recorded by QC1 appeared to comply with WPS-B-T-2112-FCM-1 and WPS-B-T-2113-FCM-1.

SMAW repair welding of weld joint SEG047B-046 located outside the OBG at PCMK 8CW, north (counterweight) side, bottom plate to side plate, approximately 150mm from east end. Welder was identified as

045246. QC was identified as QC1. Welding variables recorded by QC1 appeared to comply with WPS-345-SMAW-4G(4F)-FCM-repair-1.

Heavy Dock
This QA Inspector observed no welding related work was being performed on the heavy dock. All 4 tower lift 2's were erect with south and east lift 3's attached above, respectively. The worker access elevator was dark. North tower, lift 3 was laying horizontally at the foot of the dock. ABF Representative Kang Yi acknowledged that no welding related work was being performed on the Heavy Dock. However, this QA Inspector observed one ZPMC worker inside north tower, lift 2, at the base, deburring the drilled holes in stiffeners on skin D.

Unless otherwise noted, all work observed on this date appeared to generally comply with applicable contract documents.

Bay 9 – PMT
This QA Inspector monitored OBG Production Monitoring Test (PMT) #3088 for deck panels DP3088(PL3184A/B)-001 and DP3149(PL3345A/B/C)-001 at Gantry #2. Prior to the start of the PMT, this QA Inspector observed the root openings to be within the 0.0 to 0.5mm tolerance. The magnetic particle test (MT) of the tack welds was noted on the test panel as having been performed by ZPMC MT Inspector Cai Xin Xin on 6/20/10. The visual inspection of tack welds and root gaps was performed by ABF Representative Huang Wen Guang (ABF), ZPMC CWI Yang Baiqiang (PQC), and this QA Inspector. The tack welds and root gaps appeared to be within prescribed tolerances. This QA Inspector observed that the deck plate of the test panel was 20mm thick and the deck plate of the production panels were 20mm thick. This QA Inspector observed that the test panel was generally representative of the production panels. The ambient temperature was approximately 26°C. ZPMC personnel used an oxy-fuel torch to preheat the 3 specimens to above 60°C and the interpass temperature was still above 60°C without additional heating in conformance with WPS-B-T-2342-U1-(U-rib)-5. The start time for welding of the 3–12mm x 20mm specimens was approximately 0028 hours on 6/20/10 and the finish time was approximately 0057 hours. This QA Inspector randomly verified and documented the welding amperage, voltage, and travel speed during the gas metal arc welding (GMAW) and submerged arc welding (SAW) processes, welds 1 thru 6 at the completion of both the GMAW root pass and SAW cover pass. The welding variables recorded by PQC appeared to comply with WPS-B-T-2342-U1-(U-rib)-5. The welds were visually inspected by ABF, PQC and this QA Inspector. PQC and ABF informed this QA Inspector that all six welds were acceptable and after random inspection this QA Inspector concurred. This QA inspector randomly witnessed ZPMC ultrasonic testing (UT) inspector, identified as Xu Wei, perform UT on each of the 500 mm test welds for depth of penetration and conformance. This QA Inspector selected fifteen designated locations for macroetch sampling per contract requirements. Each macroetch sample location was stamped by ZPMC personnel with the number 3088, a number 2, chosen randomly by this QA Inspector as a verification mark, and an individual progressive macroetch identifying number for each macroetch. After removal from each of the weld test specimens, polishing, and acid etching of the selected end, the macroetches were evaluated with a 7X optical magnifier and accepted by PQC, ABF, and this QA Inspector.

All fifteen sample macros appeared to meet requirements and were noted to appear acceptable. See Caltrans U-ribs PMT Inspection Sheet, ZPMC production monitoring test plate inspection report, and Caltrans Macro Etch Log - all dated 6/20/2010 for additional information.

WELDING INSPECTION REPORT

(Continued Page 3 of 3)

Summary of Conversations:

As noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Eric Tsang, 150-0042-2372, who represents the Office of Structural Materials for your project.

Inspected By:	Goulet,George	Quality Assurance Inspector
Reviewed By:	Dawson,Paul	QA Reviewer